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animals he is always excellent. Sometimes his real life is carried too far, becoming simply dirty. The same was true of Teniers, whose drunkards are extremely offensive.

But the men and women of Wouvermans are always model men and women; his ladies are those beauteous dames who adorn the court and the palace. He scorns the poor, at least on his canvas, though probably as sympathetic with them as any other noble and generous heart. It is not necessary that we should believe Wouvermans a servile worshipper of wealth and rank; a man of genius could not have been anything of the kind; but his natural love of the beautiful and the gorgeous drove him always to the representation of life in the upper classes.

And he dearly loved the aristocracy of animal creation. No knackers' horses for him, no ill-used and battered donkey under a shower of blows, no fitting subject for the pity of the tender-hearted would obtain notice from Wouvermans. Shakspeare has a scene which Wouvermans would have been delighted to illustrate:—

“ Look when a painter would surpass the life,
In limning out a well proportioned steed,
His art with nature! workmanship at strife,
As if the dead the living should exceed;
So did this horse excel a common one,
In shape, in courage, colour, pace, and bone.”

Round-hoofed, short-jointed, fetlocks shag and long,
Broad breast, full eye, small head and nostril wide,
High crest, short ears, straight legs, and passing strong,
Thin mane, thick tail, broad buttocks, tender hide.
Look what a horse should have, he did not lack,
Save a proud rider on so proud a back.”

Wouvermans has none of that soft melancholy which some of the Flemish school were so fond of. It is true that at times, unconsciously, he painted landscapes sweetly sad, like the bleak shores of Wynants; he painted, too, some of those shapeless hillocks, with a yellow tint; those heaps of sand, covered here and there with brush, at the foot of which winds a small stream, that looks all but motionless. But the true poetry of Philip Wouvermans, the ideal which is depicted on his harmonious canvas, is a dream of happiness; not of that happiness which love-sick painters find in a gentle look, or in a green and rich field, in the solitude and silence of desert places; but of that real happiness, so easy to the rich, full of comfort and dignity, which is the result of health of body and peace of mind. These few remarks may enable the reader to appreciate the characteristics of this powerful and pleasing artist, whose pictures are still the delight of amateurs, and are rated at no more than their value, despite their number. A large number of his best pictures are in St. Petersburg, alongside Teniers, Rembrandt, Rubens, and others. His paintings, however, are also to be found in all the great galleries of Europe.

CYRUS DURAND,

THE MACHINIST AND BANK-NOTE ENGRAVER.

THE life of a self-educated man, who has raised himself to eminence, however regarded, is one of more than ordinary interest. It appeals directly to the heart, and calls up the memories of our own struggles and triumphs. We feel at once all the barriers of distance and conventional restraints giving way. All distinctions are lost in the character of the man. We are friends, and as such are ready to listen to the story of unassisted thought making its way in the world.

These remarks naturally grow out of the contemplation of the subject of the present biographical sketch. We are about to draw the outlines of a life, singularly quiet and secluded—a life known chiefly to him who lived it, and some of the finest triumphs of which were achieved and quietly recorded in the heart while the world slept.

Cyrus Durand, the subject of the present sketch, was born in 1787, in Jefferson Village, Essex County, New Jersey, the second of seven sons, all remarkable for mechanical or artistic skill. He had three sisters, who, in their own sphere of life, exhibited the same mental features. We mention this fact, as part of the domestic history. Never have we known a family so widely pervaded by natural genius, or one that promises to transmit it with such freshness to succeeding generations. Skill is seemingly their inheritance.

The Durand family, as the name indicates, is of French origin, and emigrated to this country after the revocation of the Edict of Nantes. Their early sojourn is unknown. The grandfather of Cyrus moved from Derby, in Connecticut, to what is now called Jefferson Village; in 1750, at that period a farming district, and enjoying few advantages of education, or intercourse with the large cities—a rude valley, girt on the west by low mountain ranges, among which much of the early character of Durand was formed.

His childhood was passed in almost unrestrained freedom with nature. Education in those days was an orphan bairn of civilisation. The inhabitants of each district picked up the wandering Yankee, English, or Irish schoolmaster, who happened to find his way to them. The winter season was commonly the time for study, and the courses embraced reading, spelling, writing, and arithmetic. Such was the education of Cyrus Durand, and out of such materials he was called upon by Providence, who presides over the life of men, to build for himself a character as a machinist and bank-note

engraver, intimately connected with these departments of industry and their present prosperity.

At the age of fourteen his literary curriculum was finished. He had passed over Webster's "Spelling Book," Lindley Murray's "English Reader," and Dilworth's "Arithmetic." Thus furnished for the studies and duties of life, he was called at once to its hard struggles. He began to work in the shop of his father, a noted watch-maker, and learnt the use of tools. This he did by making brass rings, and sleeve buttons, and in accordance with the simple state of society, peddled them himself.

An incident occurred in his seventeenth year, which indicates the tendency of his mind to better what he had done—a tendency which has run through his whole life, and led to as many alterations in his chief inventions as enter into the works of the most fastidious literary taste—alterations, we must add here, not prompted by selfish considerations, things foreign to his nature, but by a devotion to truth which kept him ever at work endeavouring to reach the perfect. Springfield-brook became an object of interest to him at the period just mentioned, and while others were throwing the line to catch the secluded eel or bold cat-fish, he was fishing for *muscles* for the sake of their treasured pearls. With these, he united beauty to utility in his sleeve-buttons, a pair of which, tipped with gold, was a wedding one, and is still in the family.

His handicraft extended its range. He began to make silver spoons, which he did by casting the silver in ingots and forging them. In his eighteenth year he paid a visit to a clock-maker, and while observing his works, his mind received a new impulse, and one towards his appropriate sphere of life. He returned home, and made tools for the manufacture of clocks; also an engine for cutting the wheels in clock-work. A few of these clocks are still found in the neighbourhood, and are remarkable for their excellence in time-keeping.

In 1808 he entered upon married life, but such was the dread distress into which the nation was plunged about that period, that few flowers are to be gathered by the threshold of "blessed existence." The embargo was laid on all vessels. Poverty abounded. The honest and talented mechanic was often called upon to travel miles for seven pounds of flour, and bear it home to his cold cottage through drifted heaps of

snow. During the winter that followed his marriage, Durand suffered keenly. The toils, endurances, and perseverance of those days are painfully impressive, even in the retrospect.

An event occurred about this time that illustrates the poverty of the country, and the character and resources of the man. John Taylor, now a prominent man, and president of one of the Newark banks, urged him to make a turning-lathe for jewellery. There was then only one house that made jewellery in Newark, now a city of 50,000 inhabitants, and only one place, even in New York, where castings could be obtained. He bored the holes with a brace and bit, assisted by his brother Asher pushing behind him to increase his power. That young man, who in poverty handled that brace is now the greatest bank-note engraver in the United States, and that pale, thoughtful youth, who lent his physical force

activity of his mind, and his subjection to the force of circumstances, as the ordering of Divine Providence. War and poverty lay heavily on every heart, the burden of which he alleviated in some degree by the manufacture of musical instruments and by learning to play on the clarionet. Singing-schools were then common, and formed almost the only recreation for the young—their pastime from the passing evils of war.

In 1814 Durand moved to Newark, and was engaged in silversmithing. In the fall of the same year he volunteered to go to Sandy Hook, as drummer, where he continued for three months. This was an act of devotion, which almost every one was ready to offer to his country. Distress and poverty could not damp the ardour of the people for war. In the following year we find him in Rahway, at the Taurino



CYRUS DURAND.

to his brother, is now *the* American landscape painter, president of the Academy of Design, and destined, through an unaffected devotedness to the study of Nature, and a truthful rendering of her lessons, to give a character to the American school of art, if not become its founder.

Darkness still rested on the pathway of Cyrus Durand. Shortly after that event, the law of non-intercourse was passed by England, and business was paralysed. Provisions were so dear that rye-flour sold at 6 dollars a cwt. Hope was still nurtured. Factories, to meet the wants of the time, sprung up, and Durand was called upon to make machinery. Calls of this kind would have been refused by almost any man but one conscious of his own adequate resources. He never yielded to them readily, for he was singularly modest and retiring. Indeed, when we look over his chequered life, and mark his varied pursuits and great inventions, we are at a loss to account for their existence, 'till we learn to weigh the

actory, making machines for spinning and carding hair for the manufacture of carpets.

We have now arrived at the period in his life when his versatile powers were to be concentrated, and his true character as a machinist and bank-note engraver formed. He made, at this time, for Peter Maverick, of New York, a machine for ruling straight and wave lines for bank notes. With this machine, rude and simple as it was, he opened up a new pathway, and entered upon a useful and honourable career. The next year he made two other machines; one for doing water lines, and the other for making plain ovals. This machine may be properly regarded as the beginning of that series of geometrical lathes by which machine work on bank notes has been carried to a degree of excellence that rivals the rich effect of the burin and pencil.

We are called upon now to record a singular invention. One James Brown had formed the idea of illustrating grammar

by objects, and had constructed a rude box-like instrument or combination of blocks and pegs. He brought the matter before Durand, who, though ignorant of the technics of grammar, undertook to learn them and construct a machine that would present to the eye the actual structure of sentences, and the relation of the different kinds of words to each other in language. It was completed; and so well adapted was it to the end, that children, in a short time, learned to parse any sentence upon it. A few lessons on the machine made them acquainted with the grammatical structure of their language.

In the year 1819 he constructed two machines of a very different character. At that time rope-reeded furniture became very fashionable. He made a machine by which the

his second wife, a prudent partner, and one who has made up, in a good degree, his want of financial insight and knowledge of human nature. Durand, like the most of original minds, is always absorbed in his studies, and may be looked upon as a simple and confiding child in business, and that, too, in an age that demands the cunning of the fox. This charming simplicity has been often violated by designing men, and his family deprived again and again of fortunes. Still he continues to cherish a guileless heart, and looks charitably upon all mankind. Without laying any claim to religion, beyond a simple reverence for the word of God and his Son Jesus Christ, he exhibits a benevolence and candour of life that puts to shame many a noisy professor of our holy Christianity. He



BIRTH-PLACE OF CYRUS DURAND.

legs of tables, bedsteads, and pier-glasses were turned. This was followed by one in the department of bank-note engraving, by which he was able to make *wave* ovals, an improvement on the past. This constant tendency to improvement, which we have noticed before, is an essential part of his nature, and indicates at once the growth of his mind, the fertility of his inventive genius, the suggestive character of his observations, and the impossibility of resting, so long as the future was more promising than the past.

In 1820 a violent fever of the typhoid kind raged in his native village, by which he lost his wife and two brothers, one of whom was a young man of extraordinary mechanical skill. The next year he moved to Springfield; and in 1822 married

is the most perfect model of morality, without a positive and professed religion, which we have ever contemplated. One thing alone he needs in order to be all that we could wish.

The subject of bank-note engraving continued to receive attention. In the year of his second marriage, he made a pentograph for reducing ovals for the border of notes. The suggestion must have been received from the "Edinburgh Encyclopædia," which had been republished some time before in numbers, a copy of which had found its way into his possession.

In 1823 he removed to the city of New York, and entered into partnership with C. C. Wright, in bank-note engraving. At that time there were only *five* houses engaged in this

work,—one in Hartford, Connecticut, two in Philadelphia, and two in New York. He invented a transferring-machine that year, and by it gave a new impulse to this department of industry. It was said that there was one in Philadelphia, but it was kept a secret. The principles of its structure were entirely different from those of Durand's, as appeared afterwards. The machines of the latter are now in common use.

In 1824 bank-note engraving began a new era. A. B. Durand became partner, and, as designer and engraver, carried so much taste into the work, as to place the note among the works of the fine arts—a work in which beauty now blends with utility, and that to a degree that makes paper currency an instrument for refining the public taste. At that time, Cyrus Durand invented the geometrical lathe, by which he was able to cut circles and ovals.

While engaged in prosecuting the work of the firm, he was, from time to time, called upon to exercise his ingenuity in other departments. We find him, accordingly, producing engine-lathes for ornamenting watch and pencil-cases—a branch of business created by his skill, and which has made thousands wealthy. In 1830 the firm changed its name to that of Durand, Perkins, and Co. He was at the same time engaged with Nelmoth, Moffits, and Co. in the pencil-case, watch-case, and jewellery business. Bank-note engraving was not then in such demand as it is now; it afforded only a limited source of subsistence.

In 1833 he engaged with Wright and Prentice in the xylographic printing of ornamental labels—a branch of business that flourished for a while, and was very profitable. In 1835 he left the firm, and went out west in company with his brother-in-law, intending to purchase a farm and retire from the hard and selfish struggles of life, in which he never had any pleasure. The city and its thoroughfares he has ever looked upon as the marts of Mammon, and is always happy to escape from their heated atmosphere, and breathe in quietness the fresh and pure air of the country.

After his return from the west, he purchased a small place in Camptown, New Jersey, within three miles of his native village, and built a showy Tuscan cottage upon it, and also a factory for the manufacture of fine machinery. This was in the year 1836.

We find, in the following year, the firm of Durand and Co., bank-note engravers. This partnership continued two years and better, and was anything but a happy or profitable engagement for him. It was dissolved in 1840.

The multiplicity of the engagements and connexions in which the subject of our sketch was engaged, claim a passing notice in this place, in order to shield him from seeming fickleness. Durand owns an ingenuous mind. He trusts too much to depraved nature, and is often cruelly disappointed. In these disappointments his nature recoils, and he refuses to continue in connexion with those in whom confidence and candour are wanting, or even partially obscured. The legalised principles of business intrigue shock his common-sense views of mutual intercourse: he retires from scenes where his sympathies are chilled. About the period last-mentioned, we find him the inventor of the *red-letter*, for the greater security of bank-notes against counterfeiting by alterations; and also a machine for printing calico from rollers. This machine was a practical thing, and produced some pleasing work, especially for curtain and furniture calico. In 1846 he invented a routing machine for cutting figures on type-metal rollers for oil-cloth printing, which worked well, and performed the labour of several hands.

From that time to the present, Durand has been chiefly occupied in bank-note engraving, and in improving the geometrical lathe. He has produced during this period several machines, all of which are different. They form a series of as brilliant improvements in machinery as have ever been recorded. The machines are no longer confined in their range to the circle and oval. They are capable, by certain combinations of lines, of producing a great variety of figures, and that, too, with a softness and richness of effect that emulates that of colours. He is now engaged in bringing out a discovery, in connexion with his machines, that promises to make the

counterfeiting and altering of notes impossible—a discovery that has long been looked for with a common interest by this country.

Before dismissing the geometrical lathe, we may remark that there is only one man living who can work that machine, and that man is Cyrus Durand. If he should be taken away suddenly, the invention would be lost again to the world, or, at least, so far as the production of new work is concerned, and banks would have to content themselves with the use of the old work.

The sketch, which we have drawn, would be incomplete without a brief notice of the manner in which he produces his machines. His conception, in all its details, is formed commonly in the stillness of night. He is in the habit of retiring very early, and after the first sound sleep, and before the dawn purples the east, wakes to construct in his mind the new machine, or add the new improvement. He forms no drafts or models for himself or his workmen, but from the vivid pictured conception, deals out to the pattern-maker, or under mechanic, the thoughts which they are to shape in wood or metal. No poet has ever been able to create so sensibly the plan of his poem as Cyrus Durand calls up before the eye of his mind the principles of his machines. They appear in embodied machinery.

The life of such a man as Durand is highly instructive. It is the true "study for the million." It presents the inherent energies of the mind at work; and whilst it lays open to view the many disadvantages under which the self-educated pass their lives, and brings strikingly to view the importance of a directive education; it also brings to light the vigour and resources of a thoughtful mind becoming great in wrestling with the forces of nature. It does more. It leads us to question the truthfulness of existing systems of education, and strengthens the conviction that a cold, artificial, and fragmentary method of training the mind, has improperly usurped the place of nature. If education is barren, its barrenness must be attributed to the untruthfulness of the system, and not to the thing itself.

The interest, however, which attaches to such a life is seldom satisfactory. Too commonly, it is the awakening of an inquiry that must remain ungratified. The springs of action are without the sphere of our observation. We would see the struggles of the self-educated and watch with his watchings. We would look approvingly upon the rude plans that contained the promise and hope of the future. We would look in pity upon his disappointments and whisper encouragement. We would record his observations and be a party to all the warfare, and alliances, and treaties of his thoughts; but these things are denied to us. We must be content with the naked facts of his existence. The life of the self-educated is commonly a hidden one. It is lived more in the heart than in public. The witnesses of its deeds are oftener the flickerings of the dying lamp and the light of midnight stars than the eyes of men. No notes are taken, and when years have passed by, the man himself can do little more than speak of toils, the long-suspended contest, and the triumph so tardily acknowledged by the people; or worse still, the practical conception, the honours and profits of which were stolen by designing men. Cunning waylays the steps of skill: the dust of the conflict hides the victor from view, and thus deprives us of a knowledge of the peaceful contention, rich at once in suggestion and hopes. The internal as well as the external steps by which the self educated man attains the results of his life, are the true materials of his memoir, the lessons which genius reads to the world.

Cyrus Durand, the sketch of whose life we now close, continues with unabated zeal to prosecute the labours of his life—"still achieving, still pursuing." He is now connected with the firm of Dantforth, Wright, and Co., bank-note engravers, New York. His residence is in Newark. He is zealous and constant in his devotions to all the members of his family, who unreservedly look to him with tenderness and reverence, ever happy in being able to meet the simple and almost child-like wants of his nature.